

essentials of

■ good structural clay facing tile workmanship

■ mortar and layout

STRUCTURAL FACING TILE walls are selected by the architect and owner from many available materials for maximum permanence, sanitation, elimination of maintenance cost, appearance and color of walls. These points should be the objective when erecting the walls.

Some variables are naturally present in burned clay material and in the work of any artisan. The success of the completed job of Structural Facing Tile is largely due to the use of correct mortar, studied layout, techniques of laying, jointing methods and skill of the mason in applying the steps emphasized in this manual.

MORTAR FOR LAYING STRUCTURAL GLAZED FACING TILE UNITS

Specifications for mortars for unit masonry are included in Technical Notes, Vo. 7, No. 11. These specifications are based on ASTM Specifications for Mortar for Unit Masonry, C270-, with slight modifications, and cover four mortars, designated as Types M, S, N and O. The proportions of cementitious materials and aggregate for each type are given in Table 1. Any one of these mortars is satisfactory for use in laying structural glazed facing tile, depending upon the requirements of the particular job, such as transverse and compressive strengths, dirt resistance and appearance.

AGGREGATES AND ADMIXTURES. Sand used in mortars for laying structural glazed facing tile should conform to ASTM Specifications for Aggregate for Masonry Mortar, C144-, except that all sand should pass a No. 16 sieve.

Mortar colors, when used, should be inorganic compounds, and with the exception of carbon black, should not be used in an amount exceeding 10 to 15 per cent of the weight of the cement. The use of carbon black should be limited to 2 to 3 per cent of the weight of the cement.

HIGH BOND STRENGTH OF MORTAR. Where high resistance to lateral force is required, a portland cement-lime-sand, Type S, mortar is recommended. This consists of 1 part portland cement, 1/2 part Type S hydrated lime or lime putty, and 4 1/2 parts sand by volume.

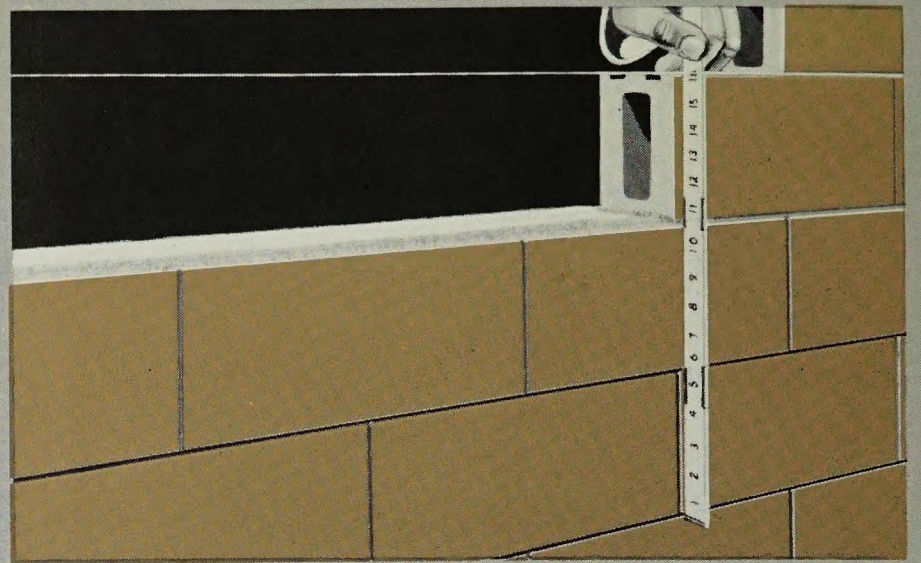
GROUT FOR REINFORCED LINTELS. Grout for use in reinforced lintels should be portland cement-lime-sand, Type M, mortar proportioned by volume of 1 part portland cement, 1/4 part Type S hydrated lime or lime putty, and 3 parts sand to which 2 parts pea gravel passing a 3/8-inch sieve is added. Sufficient water is then added to produce a consistency for pouring without segregation of the constituents.

TABLE 1 Mortar Proportions by Volume ⁽¹⁾

Mortar Type	Portland Cement cu. ft.	Masonry Cement (ASTM C91-) cu. ft.	Hydrated Lime or Lime Putty cu. ft.	Aggregate Measured in Damp, Loose Condition cu. ft.
M	1 1	none 1—Type 2	1/4 none	Not less than 2 1/4 and not more than 3 times the sum of the volumes of cement and lime used.
S	1 1/2	none 1—Type 2	over 1/4 to 1/2 none	
N	1 none	none 1—Type 2	over 1/2 to 1 none	
O	1 none	none 1—Type 1 or Type 2	over 1 to 2 none	

⁽¹⁾ For the purposes of these specifications, the weight of one cubic foot of the respective materials used shall be considered to be as follows:

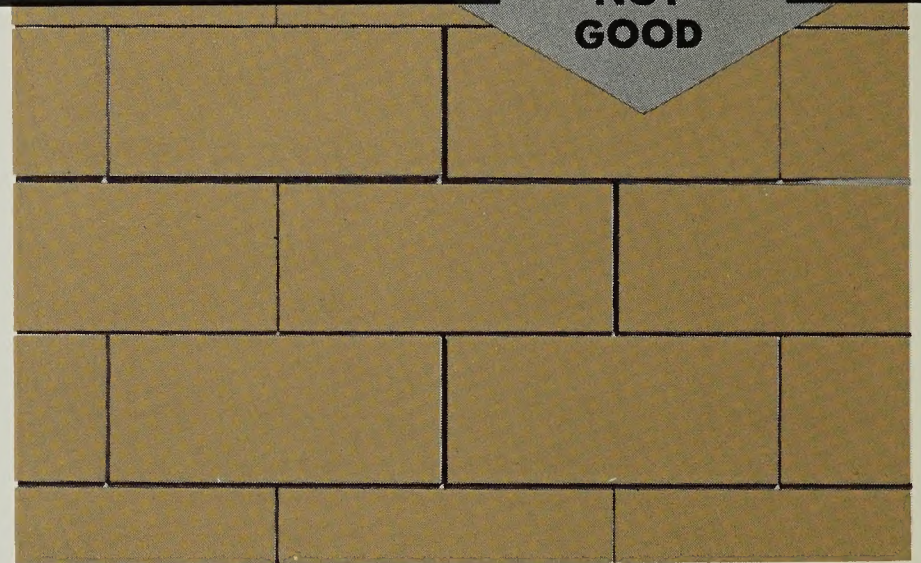
Portland Cement	94 lbs.
Masonry Cement	weight printed on bag
Hydrated Lime	40 lbs.
Lime Putty (Quick Lime)	80 lbs.
Sand, damp and loose	80 lbs. of dry sand



With the "6T" and "4D" Series lay each course $5\frac{1}{2}$ inches (approximately $5\frac{5}{16}$ ") above the last one. Lay top edge of each unit to the line. Do not make course heights more than 3 courses—equal 16".

GOOD

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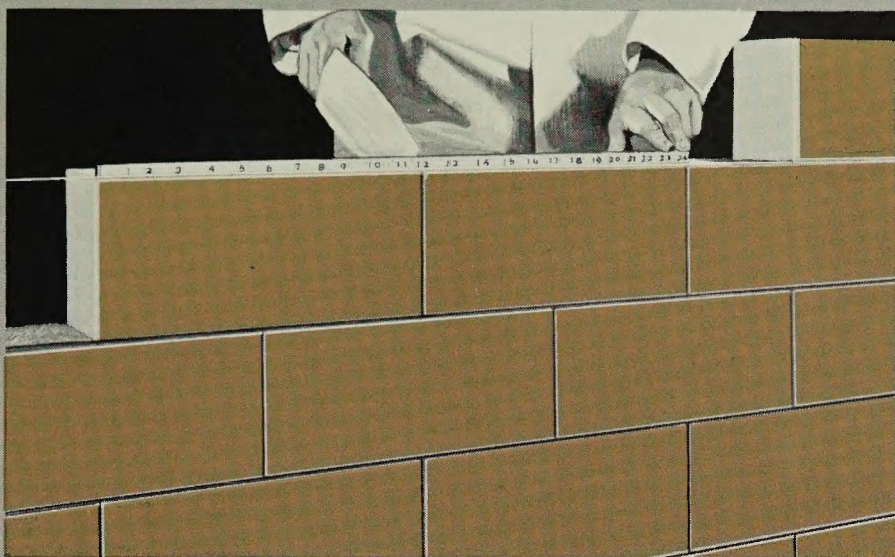
NON-STAINING MORTARS. For maximum resistance to staining, it is recommended that all mortar joints be raked to a depth of approximately $\frac{3}{8}$ inch and repointed with a mortar consisting of 1 part portland cement, $\frac{1}{8}$ part Type S hydrated lime or lime putty, and 2 parts extra-fine sand (50 mesh or finer) by volume, to which aluminum tristearate, calcium stearate or ammonium stearate is added in an amount equivalent to 2 per cent of the weight of the cement.

Where significant but not necessarily maximum dirt resistance is required, add either aluminum tristearate, calcium stearate or ammonium stearate to the construction mortar in an amount equivalent to 3 per cent of the weight of the cement.

Wide and uneven joints are not desired and are not attractive. Keep width of joints as uniform as possible, approximately $\frac{1}{4}$ " in width.



Fill joints with pointing mortar, using rubber face trowel as a squeegee to spread and remove excess mortar. Wet wall joints thoroughly first if tiles are dry. Fill all joints fully and flush with face of glazed units.



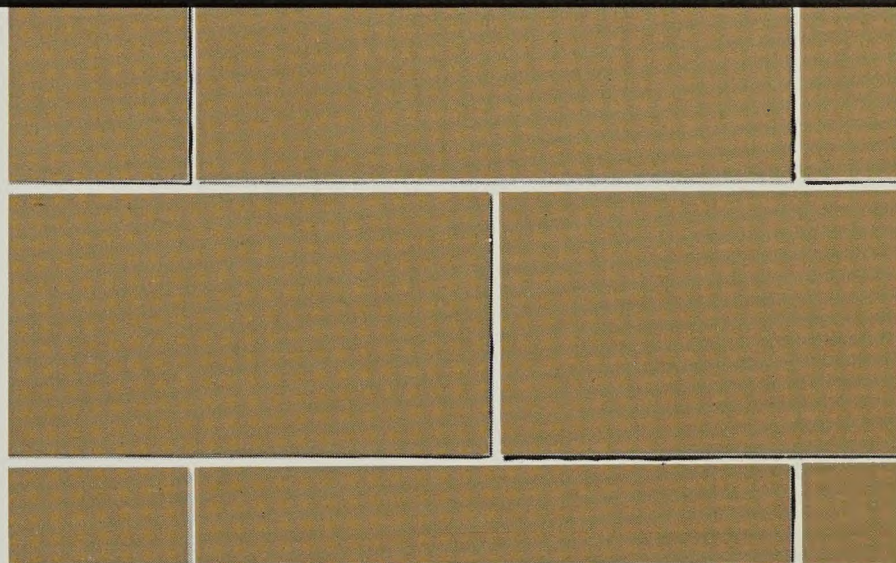
With the "6T" Series lay out the units to 12-inches on center ($11\frac{3}{4}"$ tile plus $\frac{1}{4}"$ joint = 12".) Hold to average 12" spacing and keep vertical joints as uniform as possible.



Rake out joints for pointing mortar before mortar sets up. Use a raking tool or wooden stick and rake clean to a depth of approximately $\frac{3}{8}"$. Wipe cement from tile edges.



Deeply concave joints are not acceptable. Note that heavy shadows accentuate unevenness. They are dirt catchers and hard to keep clean. They defeat the purpose of structural glazed facing tile walls.



When joints are tooled too deeply with a small radius tool, the job does not look its best. Imperfections in material and workmanship are accentuated by the irregular shadows cast in these deep joints.

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Use a clean, flat sponge and lightly wipe off all excess mortar from the glazed surface. Wipe carefully and make mortar *smooth, flat* and *flush* with the glazed surface. Care should be taken that there is no overlapping of mortar on the surface of the units.



An alternate method of smooth finishing the mortar joints is to tool the mortar while it is still workable. If tooling is done, use a smoother with at least 1 inch diameter. The tooled joint should be nearly flat—just barely concave. This makes a clean, smooth wall without variable shadows between the units.

CLEANING

Acid cleaning should not be required for glazed masonry. As the work progresses, any excess mortar should be removed with a cloth. Upon completion of the work, all wall surfaces of glazed units may be cleaned, using soap and warm water applied with a fiber scrubbing brush, followed by a thorough rinsing with clear water. Hard lumps of mortar may be removed by using sharp-ended wooden paddles. Metal cleaning tools and brushes or abrasive powders should not be used.

Structural glazed facing tile provides impervious, sanitary surface finish in corridor wash-up area in kindergarten wing of the Roxbury School, Stamford, Conn.

*Sherwood, Mills & Smith, Archs.
Joseph Molitor photo*

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assurance of highest quality
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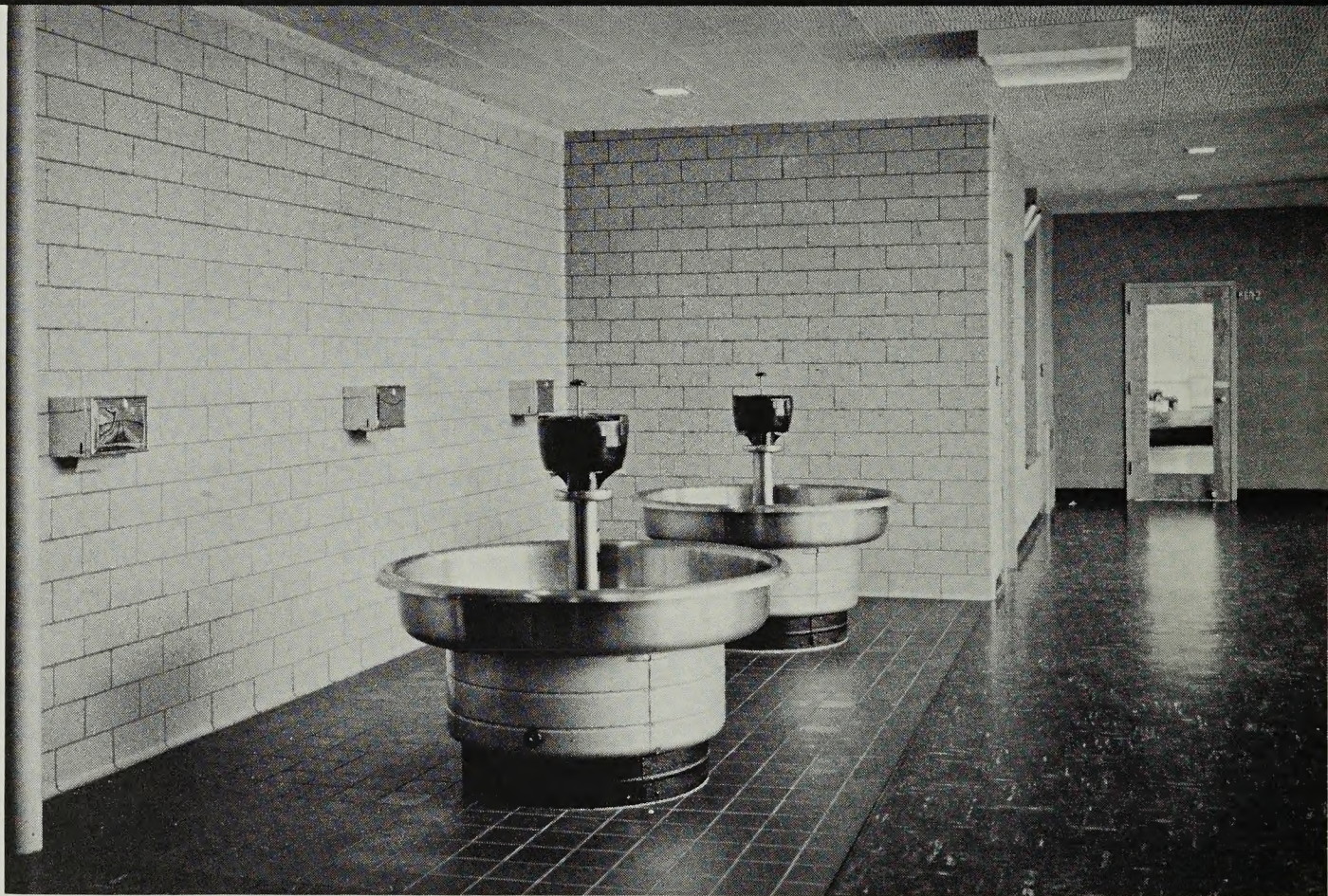
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